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Methods for Studying Identity Development Processes

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Methods for Studying Identity Development Processes

Mandy van der Gaag
Saskia Kunnen

Three illustrations

- Empirical study – analyzing time-series
 1. Types of commitment trajectories
 2. Relations between exploration and commitment - within individuals
- Theoretical study – computational modelling
 3. Modelling and simulating the process of exploration in career choice

Empirical study

- Domain of education
- 3 cohorts of first year psychology students
- Intensive longitudinal data – online diary study
 - ± 30 weekly measurements
 - Period of 8 months

Measurements

- Experience → Description important event
+ rating accompanying emotions
 - Exploration →
 - Commitment → Instrument?
GIDS-r, DIDS, ISI, U-MICS?
- ↓
- ...but a lot of repeated measurements...

Instrument

- Repeated Exploration and Commitment Scale in the domain of Education (RECS-E)

Macro level:

Identity
Commitments

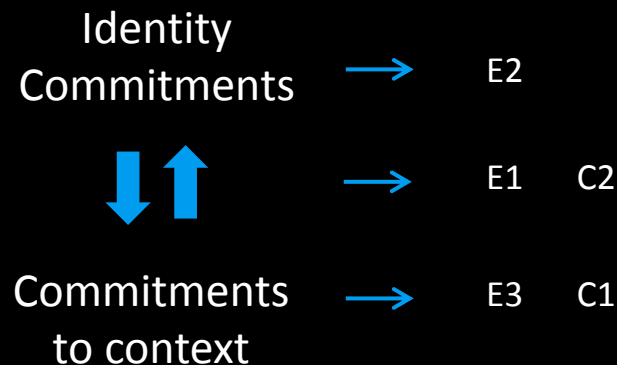


Meso level:

Commitments
to context

Items RECS-E

Answer the following questions about last week:	Code
Have you asked yourself whether this education is right for you?	E1
Have you been investigating your interests and ambitions in the domain of education/career?	E2
Have you been searching for alternatives to this education?	E3
Do you stand by your choice for this particular education?	C1
Do you feel that your education is fitting for you?	C2

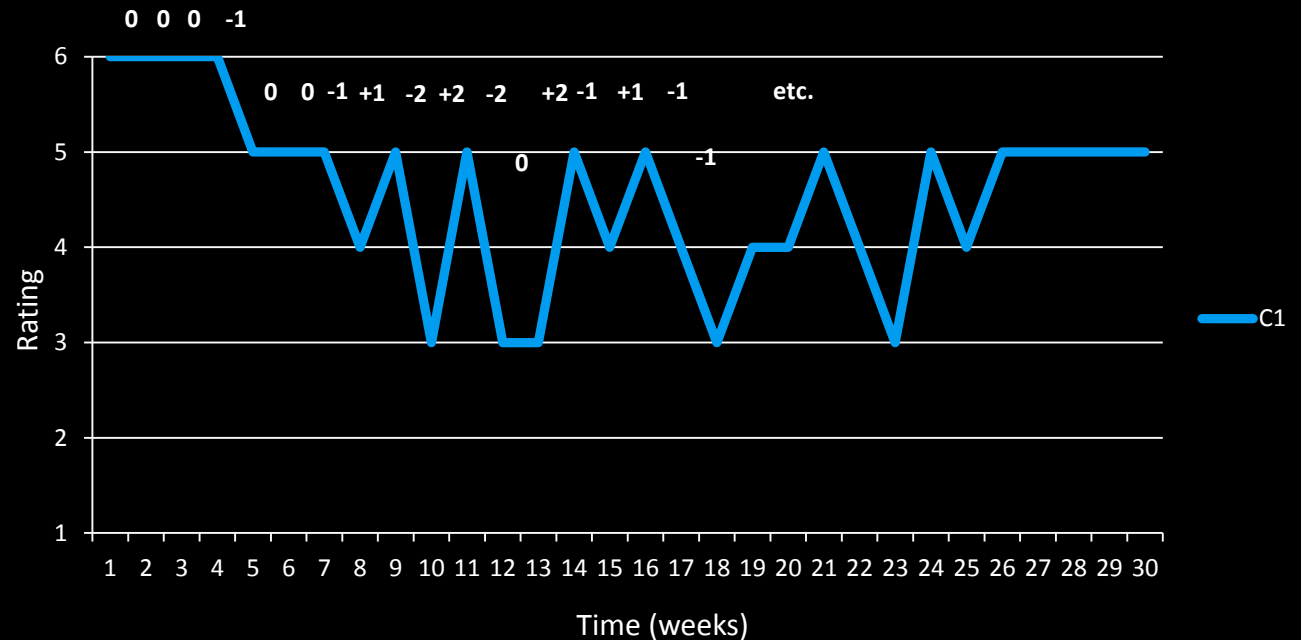


Types of commitment trajectories

- Classify commitment trajectories
 - Variability → Cluster analysis
- For each individual (N=72) mean and stability score of C1

Types of commitment trajectories

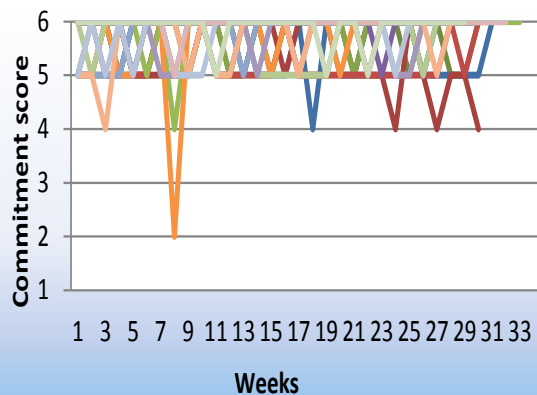
- Example
P. 61



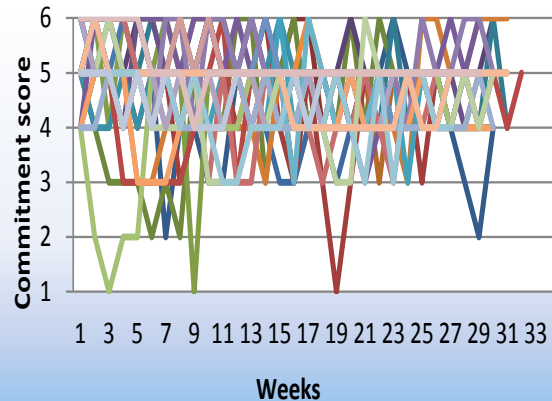
- Variability = 0,8

- mean = 4,6

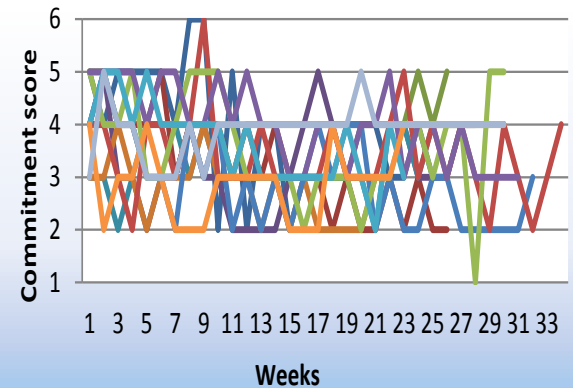
Types of commitment trajectories



Cluster 1 – high and stable commitment



Cluster 2 – high and fluctuating commitment



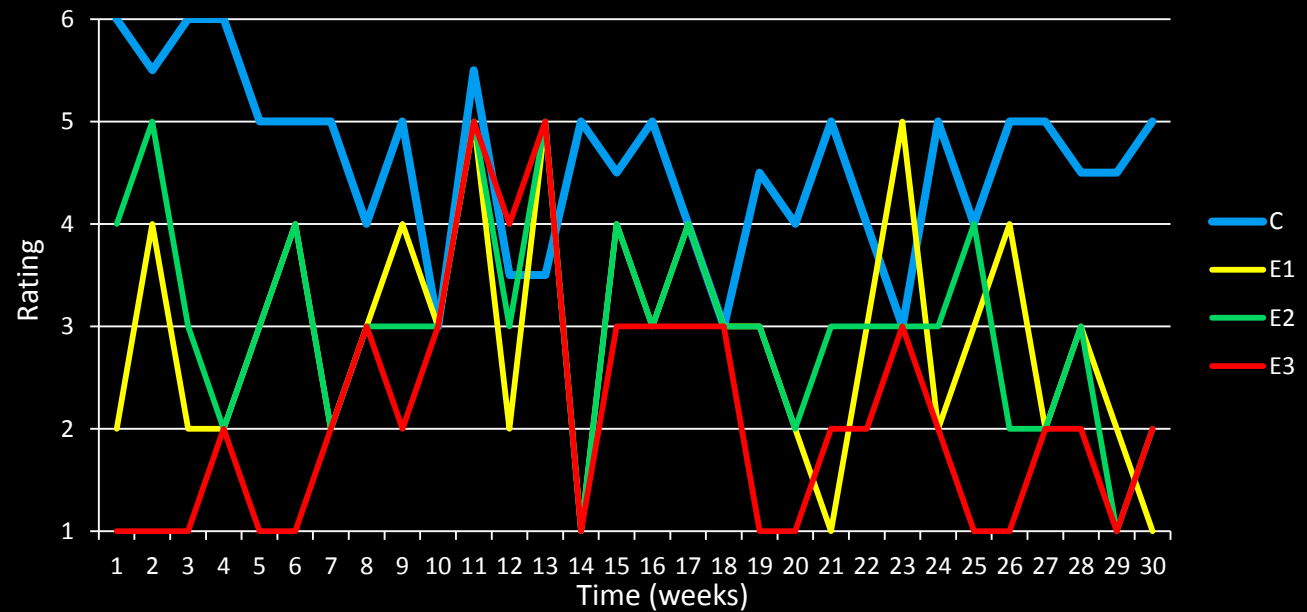
Cluster 3 – low and fluctuating commitment

Intra-individual correlations

- Identify intra-individual relations between exploration and commitment
- For each individual (N=35), correlations between commitment (C1+C2) and each of the three types of exploration (E1, E2 and E3)

Intra-individual correlations

- Example
P. 61



Correlations:

C-E1

-0,29

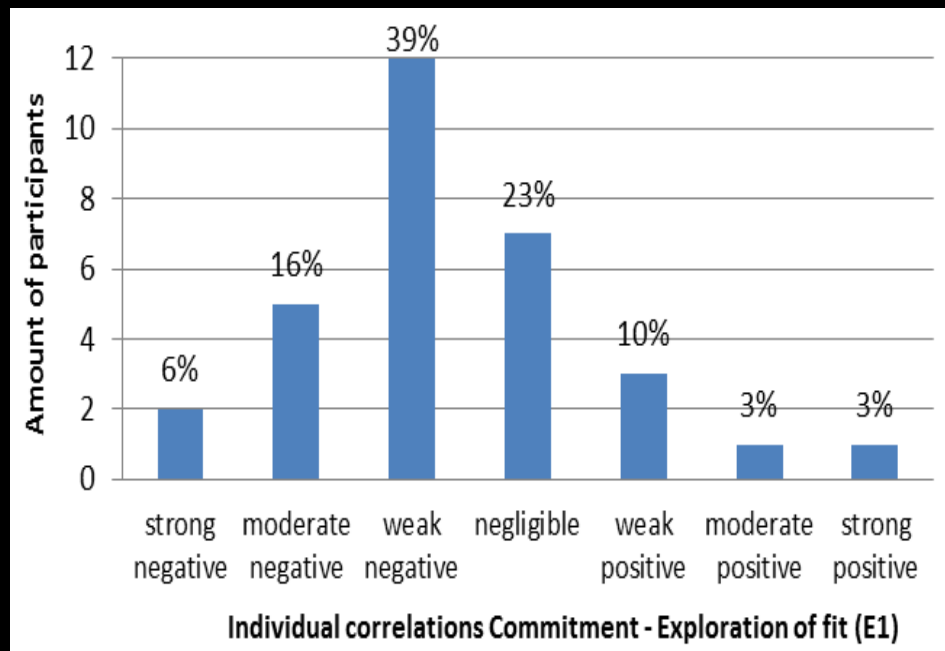
C-E2

-0,04

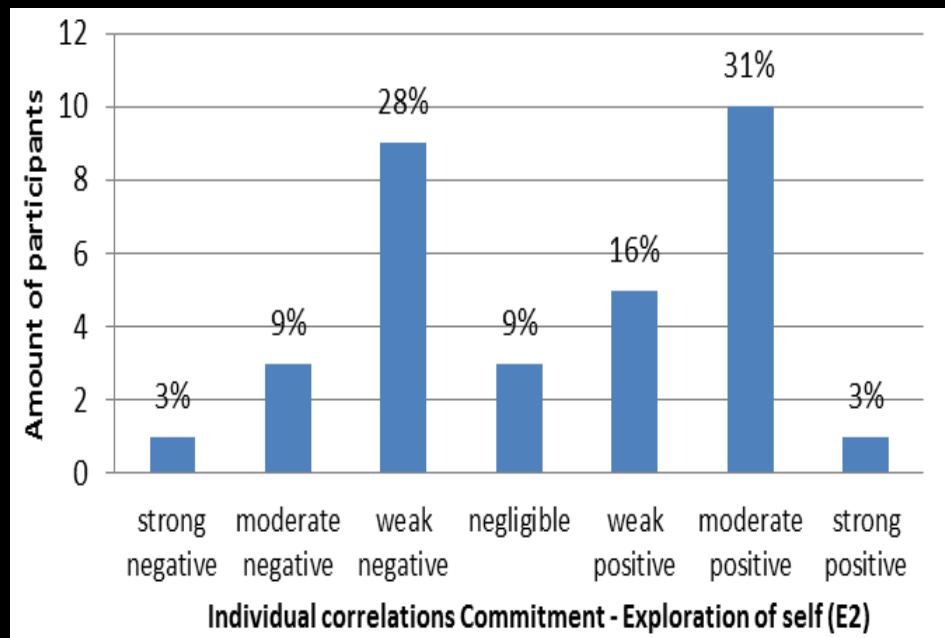
C-E3

-0,43

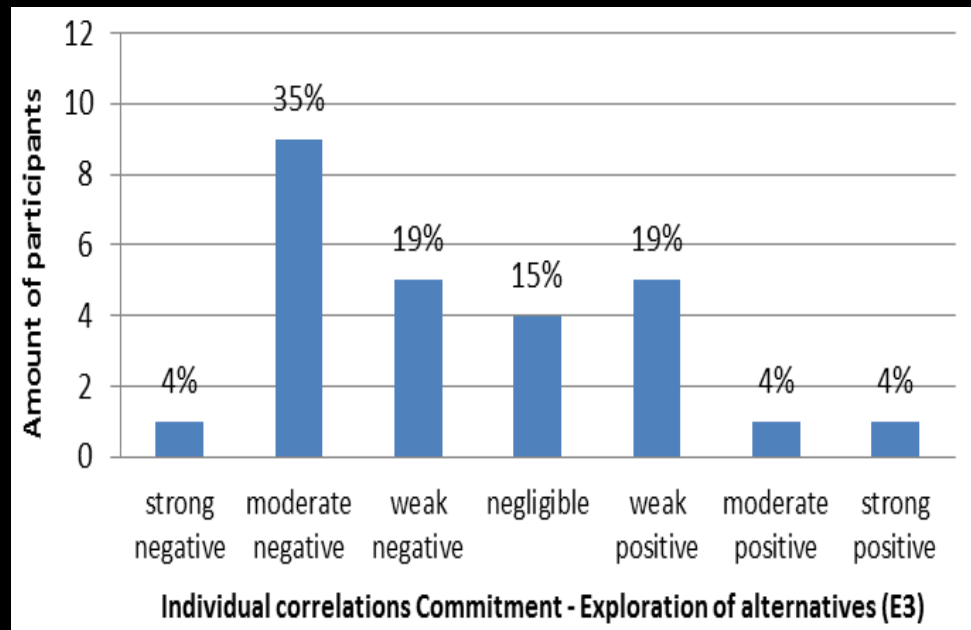
Intra-individual correlations



Intra-individual correlations



Intra-individual correlations



Theoretical study

- Modelling exploration of career choices
 - transition from secondary school to higher education
- Collaboration Pieter van den Berg
- Brief introduction and illustration

Computational Modelling

- No data!
 1. Make theoretical assumptions explicit
 2. Translate assumptions into a (elaborate) mathematical formula
 3. Implement in either
 - Software (e.g. NetLogo, Nova)
 - Or a programming language (e.g. C++)

Main assumptions

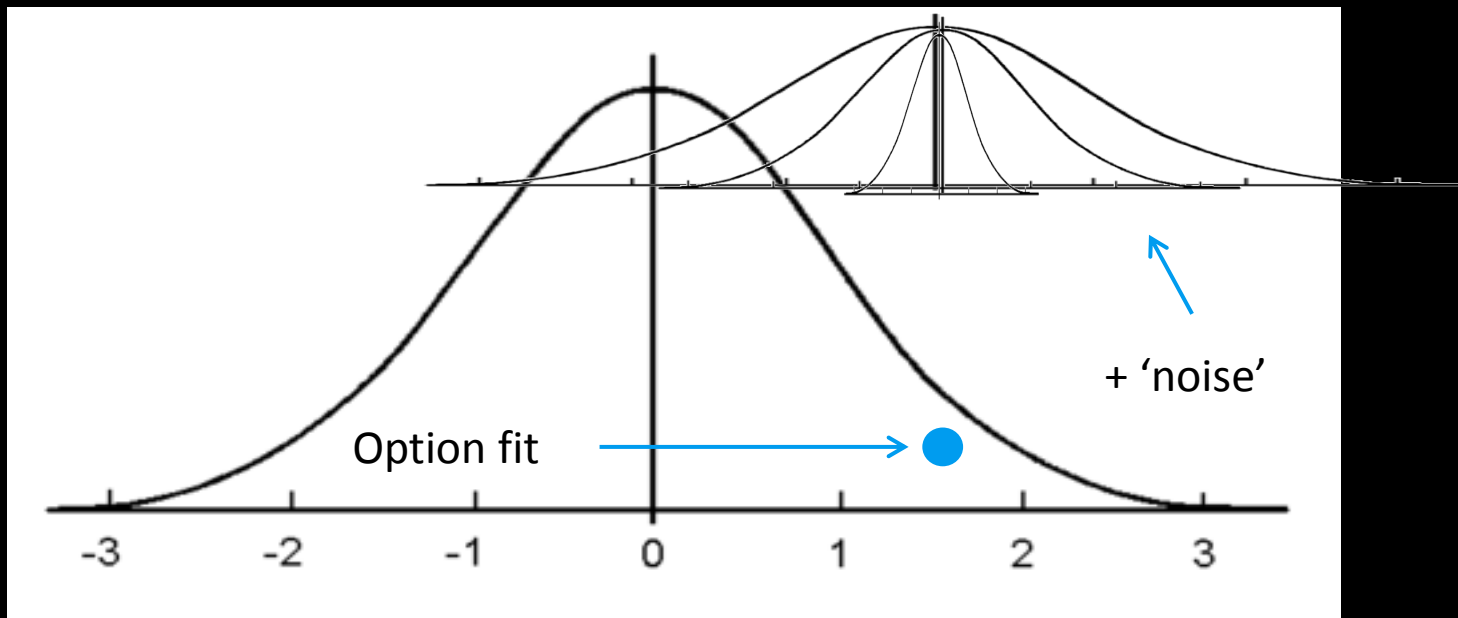
- Macro lvl – different types of exploration
 - exploration in breadth & depth

(Iuyckx et al. 2006, Germeijs & Verschueren 2006)
- Micro lvl – information processing theories
 - Information gathering is iterative, not perfect, and takes time

(Oppenheimer & Kelso, 2015; Johnson, Haubl & Keinan, 2007; Busemeyer & Townsend, 1993)

Assumptions to math

- Example: exploring a new option



Math to code

- Main C++ code →
- Parameters ↓

```
20
21  int const consider_size = 3;
22  const int timelimit = 200;
23
24  const double tresh1 = 1.0;
25  const double tresh2 = 2.0;
26  const double noise = 0.25;
27  const double probsample = 0.5;
28  const double recency = 1.0;
29
```

```
111  //////////
112  // main //
113  //////////
114
115  int main()
116  {
117      init();
118      output.open("output_indiv.txt");
119      writeheaders();
120
121      for(int i = 0; i < timelimit; ++i)
122      {
123          int goodoption = 0;
124          whathappened=-1;
125          choicemade=0;
126
127          if(i%100 == 0) {cout << i << "\n";}
128
129          for(int j = 0; j<consider_size; ++j)
130          {
131              if(consider[j].subj > tresh1)
132                  goodoption = 1;
133
134              if(consider[j].subj > tresh2 && choicemade == 0)
135              {
136                  choicemade = 1;
137              }
138          }
139
140          if(goodoption == 0)
141          {
142              explore();
143              whathappened=4;
144          }
145          else
146          {
147              if(Uniform(mt)<probsample) {explore();}
148              else {exploit();}
149          }
150
151          writedata();
152      }
153      return 0;
154  }
155
```



Running simulations

- Example: animation

Results?

- Work in progress
- We already learned:
 - A computational model allows you to see ‘holes’ in theory
 - We don’t know much about micro-level processes of identity development
 - A computational model can generate testable hypotheses on these micro lvl mechanisms

Messages to go

- Individual time series analyses can give insight in for who hypotheses are true, instead of assuming that a relation between variables is true for everyone
- Computational modelling is a powerful tool for developing theory and discovering fruitful avenues for future research

To be continued...

- Thank you!
- Questions? Comments?
- Contact: mandyvandergaag@gmail.com